

PD-2.313 rev. A 12/97

6CWQ03F
6CWQ04F

SCHOTTKY RECTIFIER

6.6 Amp

Description/Features

Characteristics	6CWQ..F	Units
$I_{F(AV)}$ Rectangular waveform	6.6	A
V_{RRM}	30/40	V
I_{FSM} @ $t_p=5\mu s$ sine	470	A
V_F @ 3 Apk, $T_J=25^\circ C$ (per leg)	0.55	V
T_J	-40 to 125	$^\circ C$

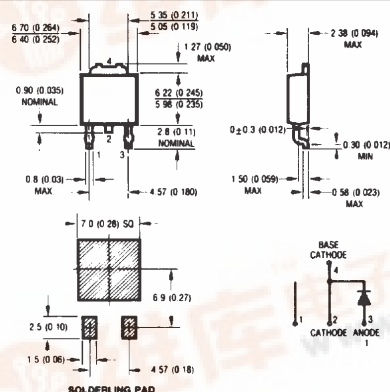
The 6CWQ..F surface mount, center tap, Schottky rectifier has been designed for applications requiring low forward drop and small foot prints on PC boards. Typical applications are in disk drives, switching power supplies, converters, free-wheeling diodes, battery charging, and reverse battery protection.

- Popular D-PAK outline
- Center tap configuration
- Small foot print, surface mountable
- Low forward voltage drop
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability

6.70 (0.264)
6.40 (0.252)

2.38 (0.094)
MAX.

6.22 (0.245)
5.98 (0.235)



D - PAK Outline (Similar to TO-252AA)
Dimensions in millimeters and inches



Voltage Ratings

Part number	6CWQ03F	6CWQ04F
V_R Max. DC Reverse Voltage (V)	30	40
V_{RWM} Max. Working Peak Reverse Voltage (V)		

Absolute Maximum Ratings

Parameters	6CWQ..F	Units	Conditions
$I_{F(AV)}$ Max. Average Forward Current * See Fig. 5	6.6	A	50% duty cycle @ $T_C = 97^\circ\text{C}$, rectangular waveform
I_{FSM} Max. Peak One Cycle Non-Repetitive Surge Current (Per Leg) * See Fig. 7	470	A	5 μs Sine or 3 μs Rect. pulse
	42		10ms Sine or 6ms Rect. pulse

Following any rated load condition and with rated V_{RWM} applied

Electrical Specifications

Parameters	6CWQ..F	Units	Conditions
V_{FM} Max. Forward Voltage Drop (Per Leg) * See Fig. 1 (1)	0.55	V	@ 3A
	0.71	V	@ 6A
	0.50	V	@ 3A
	0.63	V	@ 6A
I_{RM} Max. Reverse Leakage Current (Per Leg) * See Fig. 2 (1)	3	mA	$T_J = 25^\circ\text{C}$
	20	mA	$T_J = 125^\circ\text{C}$
C_T Typical Junction Capacitance (Per Leg)	180	pF	$V_R = 5V_{DC}$, (test signal range 100Khz to 1Mhz) 25°C
L_S Typical Series Inductance (Per Leg)	5.0	nH	Measured lead to lead 5mm from package body
dv/dt Max. Voltage Rate of Change (Rated V_R)	10,000	V/ μs	

(1) Pulse Width < 300 μs , Duty Cycle < 2%

Thermal-Mechanical Specifications

Parameters	6CWQ..F	Units	Conditions
T_J Max. Junction Temperature Range	-40 to 125	$^\circ\text{C}$	
T_{stg} Max. Storage Temperature Range	-40 to 125	$^\circ\text{C}$	
R_{thJC} Max. Thermal Resistance Junction to Case	5.0	$^\circ\text{C/W}$	DC operation * See Fig. 4
R_{thJA} Max. Thermal Resistance Junction to Ambient	80	$^\circ\text{C/W}$	DC operation PC Board mounted print land = 20x20mm
wt Approximate Weight	0.3(0.01)	g(oz.)	
Case Style	D - PAK		Similar to TO-252AA

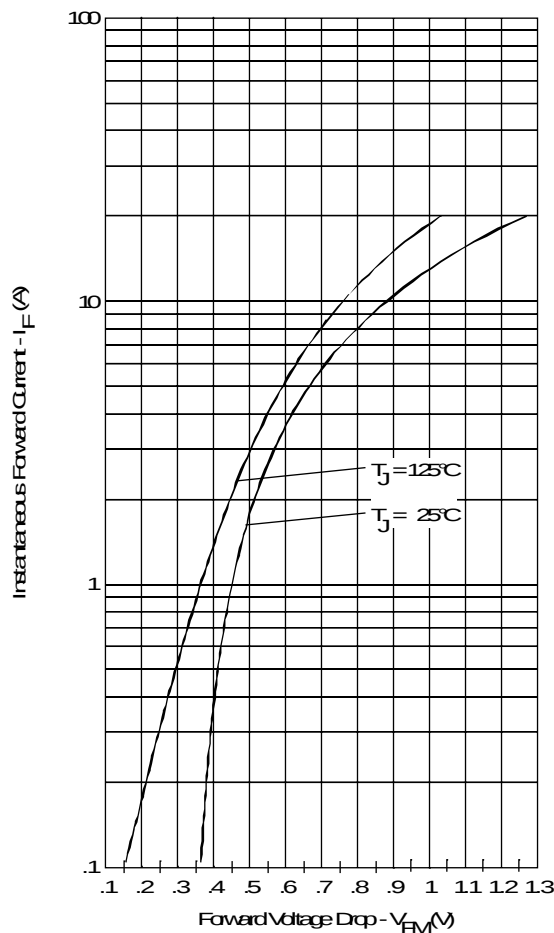


Fig. 1 - Max. Forward Voltage Drop Characteristics (Per Leg)

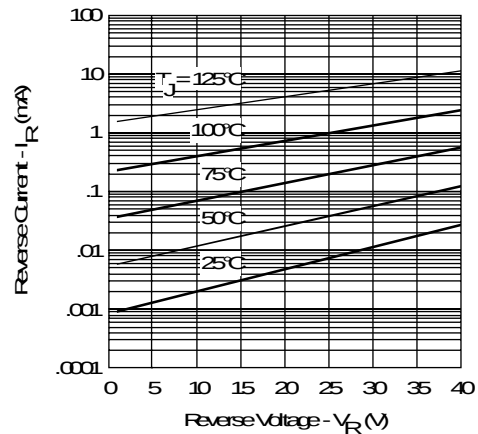


Fig. 2 - Typical Values Of Reverse Current Vs. Reverse Voltage (Per Leg)

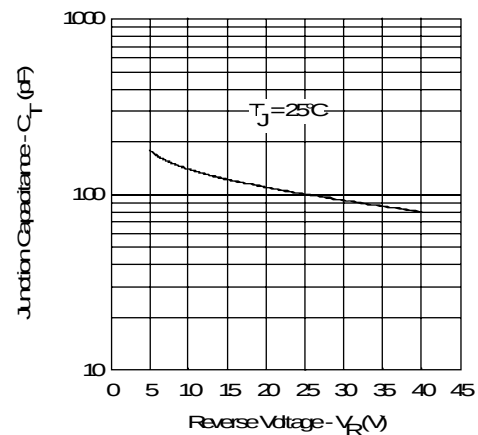


Fig. 3 - Typical Junction Capacitance Vs. Reverse Voltage (Per Leg)

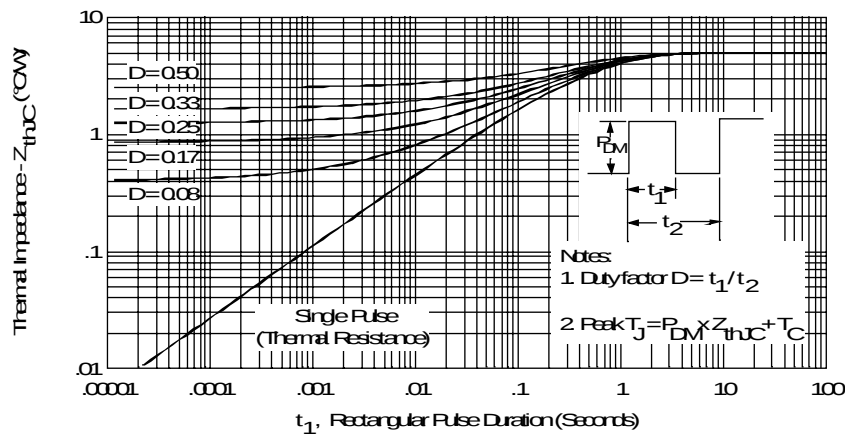


Fig. 4 - Max. Thermal Impedance Z_{thJC} Characteristics (Per Leg)

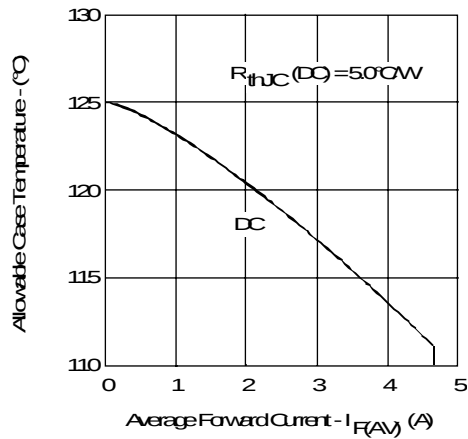


Fig. 5 - Max. Allowable Case Temperature Vs. Average Forward Current (Per Leg)

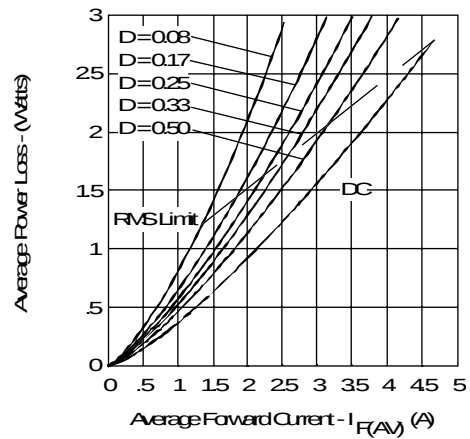


Fig. 6 - Forward Power Loss Characteristics (Per Leg)

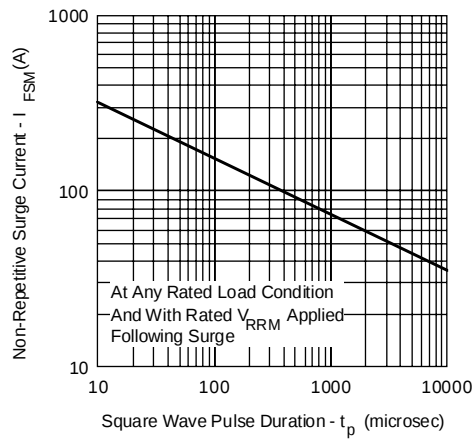


Fig. 7 - Max. Non-Repetitive Surge Current (Per Leg)